Space Weather Forecast

Issued on Tuesday, 02 August 2022 at 01:23 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Chance of Active geomagnetic activity over the next 4 days.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been low over the past 24 hours, with one long duration common class flare from the eastern limb ending around 01/0230 UTC. There are currently two sunspot regions on the visible disc. AR3068 in the SE has shown minor growth with several intermediate spots. AR3070 in the NE is a weak, simple and stable spot. No Earth-directed coronal mass ejections were observed.

Solar Wind / Geomagnetic Activity: Solar winds indicate that earth is within a Coronal Hole High Speed Stream. Wind speeds have fluctuated between slightly elevated to elevated. The total interplanetary magnetic field was generally weak. The north-south component fluctuated weakly positive and negative. Geomagnetic activity was mostly Quiet (Kp 1-2), with one Unsettled interval (Kp 3).

Energetic Particles / Solar Radiation: The count rate of energetic particles remained at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low solar activity is expected to continue, with a slight chance of moderate class flares. Flare risks possibly increasing due to active regions rotating onto the visible disk in coming days.

Solar Wind / Geomagnetic Activity: No Earth directed coronal mass ejection are currently expected. Solar winds are slightly-elevated due to the onset of the high speed stream from coronal hole 07. This is a long feature in the Sun's southern hemisphere, therefore solar winds are expected to remain elevated or slightly elevated until day 3 (04 Aug), when wind speeds are expected to fall back to background levels for the remainder of the period.

Geomagnetic activity should remain mainly Quiet with a chance of Unsettled or Active intervals through the period.

Energetic Particles / Solar Radiation: The count rate of energetic particles is forecast to remain at background with no solar radiation storms occurring.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	10	10	15	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	15	20	20	20
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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